

Appln No. 09/960,148
Amendment Dated May 24, 2004
Reply to Office Action of December 22, 2003

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (canceled)

2. (canceled)

5 3. (canceled)

4. (currently amended) A book trimmer as set forth in claim [[3]] 55 wherein said book is oriented in a substantially vertical plane, and wherein said shearing plane is substantially horizontal.

5. (currently amended) A book trimmer as set forth in claim 4 wherein with said
10 holder positioned so as to dispose one edge of said book parallel to said shearing plane and with
said sub-frame positioned so that said one edge of said book resting rests on said blade, a
reference position is established, ~~said holder gripping said book between said first and second~~
~~minor edges proximate said spine.~~

6. (currently amended) A book trimmer as set forth in claim 5 wherein with said
15 holder gripping said book proximate said spine substantially equidistantly between said minor
edges, said carriage sub-frame moving said book relative to said reference position so as to
position said first edge of said book relative to said shearing plane such that a predetermined
amount will be trimmed from said book along said one edge upon actuation of said blade.

7. (original) A book trimmer as set forth in claim 6 wherein said holder is
20 rotatable with respect to said carriage such that said book is rotated approximately 180° as said
carriage moves from its first to its second position thereby to orient said second edge relative to
said shearing plane for trimming said second edge, and wherein said holder is rotatable
approximately 90° with respect to said carriage as said carriage moves from its second to its third
position thereby to orient said third edge relative to said blade for trimming said third edge.

8. (original) A book trimmer as set forth in claim 7 wherein said third position is intermediate said first and second positions.

9. (currently amended) A book trimmer as set forth in claim 7 further wherein said trimmer further comprises an actuator for raising and lowering said carriage sub-frame relative to said shearing plane so as to position said edges of said book relative to said shearing plane such that upon actuation of said shearing blade said blade shears said predetermine amounts from said book.

10. (currently amended) A book trimmer as set forth in claim 3 further comprising a controller for controlling operation of said carriage sub-frame as the latter moves between its said positions, for controlling said holder as the latter grips said book, for controlling operation of said carriage to move toward and away from said shearing plane, and for controlling operation of said blade.

11. (original) A book trimmer as set forth in claim 10 wherein said finished dimensions of said book are known to said controller such that with said book in said first, second and third positions, said controller determines the amount of said book along said first, second and third edges to be trimmed so as to result in said finished book of said finished dimensions.

12. (currently amended) A book trimmer for trimming the edges of a perfect bound book, the latter comprising a plurality of text pages and a cover, said book being rectangular and having major and minor edges, said book to be trimmed along two of its minor edges and along one of its major edges to predetermined finished dimensions, the other of the major edge of said book constituting a spine along which said text pages are bound to said cover, said trimmer comprising a trimming blade movable between an open position in which said book may be inserted between the blade and a blade platen and a closed position in which said book is sheared between said blade and said platen along a shearing plane, a holder for gripping said book as said book is trimmed, a carriage supporting said holder, said carriage being movable laterally with respect to said blade between a first position in which a first edge of said book may be trimmed, a second position in which a second edge of said book may be trimmed, and a third position in

Reply to Office Action of December 22, 2003

which a third edge of said book may be trimmed, an indexing mechanism for shifting said carriage between its said first, second and third positions, said carriage along with said holder being movable toward and away from said blade so as to position said book with respect to said blade such that said with said carriage in its said first, second and third positions, said first, second and third edges of said book are positioned with respect to said shearing plane such that predetermined amounts of said book may be trimmed from said first, second and third edges thereby to produce a book trimmed to its predetermined finished dimensions.

5 13. (canceled)

10 14. (currently amended) A book trimmer as set forth in claim 12 wherein said book is oriented in a substantially vertical plane as said first, second and third edges are trimmed, wherein said blade moves substantially horizontally as said first, second and third edges are trimmed, and wherein with said blade in its closed position[[,]] and with [[said]] one edge of said book ~~engages the face of~~ engaging said blade thereby to establish a reference position for said book with respect to said shearing plane.

15 15. (original) A book trimmer as set forth in claim 14 wherein with said one edge of said book resting on said blade in said reference position, said holder gripping said book between said first and second edges proximate said spine.

20 16. (currently amended) A book trimmer as set forth in claim 15 further comprising a sub-frame carrying said carriage, said sub-frame being movable toward and away from said shear plane, wherein with said holder gripping said book between said first and second edges and with said blade in its open position, said ~~carriage~~ sub-frame moving said book relative to said shearing plane so as to position said first edge of said book such that a predetermined amount will be trimmed from said book along said shearing plane upon actuation of said blade.

25 17. (original) A book trimmer as set forth in claim 16 wherein said holder is rotatable with respect to said carriage such that said book is rotated approximately 180 ° as said carriage is moved from its first to its second position thereby to orient said second edge relative to said shearing plane for trimming said second edge, and wherein said holder is rotatable

approximately 90° with respect to said carriage as said carriage is moved from its second to its third position thereby to orient said third edge relative to said trimming blade for trimming said third edge.

18. (original) A book trimmer as set forth in claim 17 wherein said third position
· 5 is intermediate said first and second positions, and wherein with said carriage in its said third or intermediate position, said carriage is substantially centered between said first and said second positions.

19. (currently amended) A book trimmer as set forth in claim 17 further comprising
an actuator for raising and lowering said carriage sub-frame relative to said shearing plane.

10 20. (original) A book trimmer as set forth in claim 19 wherein said actuator is
actuated when said book is in its said second position thereby to position said second edge of
said book relative to said shearing plane such that upon actuation of said shearing blade a
predetermined amount of said book along said second edge is trimmed.

15 21. (original) A book trimmer as set forth in claim 20 wherein said actuator is
actuated when said book is in its said third position thereby to position said third edge of said
book relative to said shearing plane such that upon actuation of said shearing blade a
predetermined amount of said book along said third edge is trimmed.

20 22. (currently amended) A book trimmer as set forth in claim 18 further comprising
a guide engageable with said holder as said holder is moved into its said third or intermediate
position thereby to position said one major dimension edge of said book relative to said shearing
plane.

25 23. (original) A book trimmer as set forth in claim 12 wherein said shearing
plane is a horizontal plane and wherein said book is oriented vertically with respect to said
shearing plane, with said trimming blade in its closed position and with said carriage in its said
first position, said one minor edge of said book to be trimmed may be abutted against said
trimming blade thereby to establish a reference position for the book to be trimmed.

24. (original) A book trimmer as set forth in claim 23 wherein with said blade in its closed position, with said one minor edge of said book in engagement with said blade, and with said holder loosely gripping said book, said carriage along with said holder being movable relative to said book so as to position said holder relative to said book so as to grip said book proximate the spine of said book substantially equidistant between said minor edges of said book.

5 25. (currently amended) A book trimmer as set forth in claim 24 with said holder gripping said book at said position substantially equidistantly between said minor edges, with said one minor edge of said book in the vertical position ~~it was when [[it]]~~ said one minor edge 10 was in engagement with said blade, and with said blade in its open position, wherein said carriage sub-frame is moved vertically relative to said horizontal shearing plane of said blade so that said book is positioned relative to shearing plane such that a predetermined amount of said book along said one minor edge is positioned relative to the shear blade for being trimmed from said book upon closing of said shear blade.

15 26. (currently amended) A book trimmer as set forth in claim 25 wherein prior to actuation of said shear blade with said book in said second position, said carriage sub-frame being moved vertically relative to said horizontal shearing blade so that said book is positioned relative to said shear plane such that a predetermined amount of said book along said second minor edge is positioned relative to the shear blade for being rimmed from said book upon 20 closing of said shear blade.

27. (currently amended) A book trimmer as set forth in claim 26 wherein prior to actuation of said shear blade with said book in said third position, said carriage sub-frame being moved vertically relative to said horizontal shearing blade so that said book is positioned relative to said shear plane such that a predetermined amount of said book along said one major edge is 25 positioned relative to the shear blade for being rimmed trimmed from said book upon closing of said shear blade.

28. (original) A book trimmer as set forth in claim 12 wherein a first stop is positioned relative to said holder for engagement by said carriage as the latter moves into its said

first position for positioning said holder in its said first position, a second stop positioned relative to said holder as the latter moves into its said second position for positioning said holder in its said second position, and a third stop positioned relative to said holder for engagement by said holder as the latter moves into its said third position for accurately positioning said holder at said 5 third position.

29. (original) A book trimmer as set forth in claim 12 further comprising a controller for controlling operation of said carriage as the latter moves between its first, second and third position, for controlling said holder as the latter grips said book, for controlling operation of said carriage to move toward and away from said shearing plane, and for controlling 10 operation of said shear blade so as to trim said first, second and third edges of said book.

30. (original) A book trimmer as set forth in claim 28 wherein said predetermined finished dimensions of said book are known to said controller such that with said book in said first, second and third positions, said controller determines the amount of said book along said first, second and third edges to be trimmed so as to result in said finished book of said 15 predetermined finished dimensions.

31. (currently amended) Apparatus for trimming a perfect bound book to a predetermined rectangular size, said perfect bound book having a multiplicity of pages and a cover, said book having first and second minor edges to be trimmed and one major edge to be trimmed, the other major edge of said book constituting a spine along which said pages are 20 bound to said cover, said book before trimming having a major dimension ranging up to a maximum major dimension and said book having a minor dimension ranging up to a maximum minor dimension, said book being to be trimmed to predetermined having major and minor finished dimensions, said apparatus having a trimming blade and a blade platen with the blade being movable in horizontal direction relative to said platen between a retraced retracted position 25 in which said book to be trimmed may be inserted between said blade and said platen and a cutting position in which said book is trimmed between said blade and said platen along a horizontal shearing plane, a holder for gripping said book, a carriage carrying said holder movable horizontally relative to said blade between a first position in which a first minor edge of

said book is to be trimmed to a second position in which a second minor edge of said book is to be trimmed and a third position in which one major edge of said book is to be trimmed, said carriage being vertically movable with respect to said shearing plane thereby to position said edges relative to said shearing plane such that predetermined amounts of said book along said
5 first and second minor edges and along said one major edge may be trimmed therefrom so as to produce said book or predetermined finished dimensions, and a control system for controlling operation of said holder, said carriage and said shear blade, the finished dimensions of said finished book being known to said control system such that the latter positions said first and second minor edges and said one major edge relative to said shear plane when said carriage is in
10 its first, second and third positions, respectively, so as to trim portions of said book along said first and second minor edges and along said one major edge thereby to result in a trimmed book having said predetermined finished dimensions.

32. (currently amended) Apparatus for trimming a book as set forth in claim 31 wherein with said shear blade in its closed position and with said one minor edge of said book in
15 engagement with said blade thereby to establish a reference position for said book relative to said shear shearing plane, said carriage along with said holder being movable vertically with respect to said book, ~~such that~~ said holder ~~may grip~~ gripping said book substantially equidistantly between said minor edges proximate said spine, and wherein with said book held by said holder ~~in said equidistant position~~ and with said blade open, said carriage under the control of said
20 controller being vertically movable so as to position said first edge of said book relative to said shearing blade such that upon actuation of said shearing blade a predetermined amount of said book will be sheared therefrom along said first minor edge, said controller effecting movement of said carriage from said first to said second position with said book being rotated about 180° from its said first position such that said second minor edge of said book is disposed to be
25 trimmed by said trimming blade, said controller effecting vertical movement of said carriage relative to said shearing plane as required to effect trimming of a predetermined amount of said book is trimmed from said second minor edge of said book upon actuation of said blade, and said controller effecting movement of said carriage to said third position with said book being rotated about 90° from its second position such that said one major edge of said book is disposed to be
30 trimmed by said trimming blade, said controller effecting vertical movement of said carriage

relative to said shearing plane as necessary to effect trimming of a predetermined amount of said book from said one major edge upon actuation of said shear.

33. (currently amended) Apparatus for trimming a book as set forth in claim 32 wherein said further having an indexing mechanism for said holder, said indexing mechanism effecting rotation effects rotating of said holder relative to said carriage through an angle of rotation of approximately 180° as said carriage is moved from its said first to its said second position thereby to position said second edge of said book relative to said trimming blade, and said indexing mechanism further effects rotating effecting rotation of said holder through [[and]] an angle of rotation of approximately 90° as said carriage is moved from its said second to its 10 said third position thereby to position said third edge of said book relative to said trimming blade.

34. (original) A book trimming apparatus as set forth in claim 33 wherein said indexing mechanism comprises a crank having an arm pivotally connected to said holder and a linear actuator connected to said carriage movable from a first position in which said carriage is 15 in its said first position to a second position in which said carriage is in its said second position to a third position in which said carriage is in its said third position.

35. (original) Apparatus as set forth in claim 34 wherein said linear actuator comprises a fluid cylinder

36. (currently amended) Apparatus as set forth in claim 34 having a frame sub-frame supporting said carriage, said frame sub-frame having a first stop engageable by said carriage with said carriage holder thereby to positively locate said carriage holder as the latter moves into its said first position, and a second stop carried by said frame sub-frame engageable by said carriage holder thereby to positively locate said carriage holder as the latter moves into its said second position, and a third stop carried by said frame sub-frame engageable by said carriage holder as the latter moves into its said third position thereby to positively locate said carriage holder in its said third position.

37. (currently amended) Apparatus as set forth in claim 32 having a frame sub-frame supporting said carriage, said frame sub-frame being mounted on guides for vertical movement of said carriage and of said holder ~~gripping said book~~ toward and away from the horizontal shearing plane of said blade, and an actuator for effecting vertical movement of said carriage sub-frame toward and away from the horizontal shearing plane of said blade thereby to vertically position said edges of said book ~~grinned by said holder~~ with respect to said blade such that said predetermined amounts of said book may be accurately trimmed from said first, second and third edges of the book as said carriage and said book carried thereby is in its said first, second and third positions.

10 38. (currently amended) Apparatus as set forth in claim 37 wherein with said frame sub-frame in its said first position, said vertical movement actuator is operated to accurately position said first edge of said book relative to said horizontal shearing plane such that said predetermined amount of said book along said first edge is trimmed from the book upon actuation of said shearing blade.

15 39. (currently amended) Apparatus as set forth in claim 37 wherein with said frame sub-frame in its said second position, said vertical movement actuator is operated to accurately position said second edge of said book relative to said horizontal shearing plane such that said predetermined amount of said book along said second edge is trimmed from the book upon actuation of said shearing blade.

20 40. (currently amended) Apparatus as set forth in claim 37 wherein with said frame sub-frame in its said third position, said vertical movement actuator is operated to accurately position said third edge of said book relative to said horizontal shearing plane such that said predetermined amount of said book along said third edge is trimmed from the book upon actuation of said shearing blade.

25 41. (original) Apparatus as set forth in claim 37 wherein said shear blade includes a guide for directing said pages of said book to be trimmed into the space between said blade and said platen.

42. (withdrawn) A book trimming apparatus for trimming a perfect bound book, the latter being of a rectangular configuration having a major dimension and a minor dimension, said perfect bound book being bound along one major edge constituting the spine of said book wherein one of said major edges and both of said minor edges are to have predetermined amounts trimmed therefrom so as to produce a trimmed book of a predetermined finished height and width, said apparatus having a frame, a trimming blade carried by said frame cooperable with a blade platen selectively movable between an open position in which a portion of said book to be trimmed may be inserted between said blade and said platen, a vertical track, a carriage movable on said vertical track toward and away from said blade, a drive for accurately moving said carriage along said vertical track to substantially any desired position along said vertical track, said carriage having a horizontal track movable with said carriage, a book holder carried by said carriage, said book holder gripping a book to be trimmed along proximate said spine, said holder being rotatable with respect to said carriage, said carriage being movable in horizontal direction with respect to said blade between a first position in which a first minor edge of said book may be trimmed to a second position in which the other minor edge is trimmed, said book being rotated about 180° as it is moved from said first to said second position, and said carriage being further movable from said second position to a third position in which said one major edge of said book is disposed relative to said blade for being trimmed, said book being rotated about 90° from its second position.

20 43. (withdrawn) Apparatus for trimming a bound book to a predetermined finished size, said book having a cover and a plurality of text pages, said book having a spine along one edge thereof, top and bottom edges substantially perpendicular to said spine, and an outer edge substantially parallel to said spine, said apparatus comprising a frame, a book shearing mechanism carried by said frame, said shearing mechanism having a shear blade movable in a horizontal shearing plane between a retracted position in which said book may be moved into position for being trimmed by said blade and a closed position in which said blade engages the book and shears said book, a holder for gripping said book and for holding the book as its edges are trimmed to a predetermined finished size, said holder being mounted for rotation about a horizontal axis, said book holder being movable in a horizontal direction relative to said blade such that said book is moved laterally with respect to said trimming blade, and an indexing

mechanism for moving said book holder and for rotating said book holder and said book gripped thereby from a first position in which said book is positioned for having a predetermined amount trimmed from one edge thereof to a second position in which said book is positioned for having a predetermined amount trimmed from a second edge thereof, and for moving said book holder and for rotating said holder and said book gripped thereby from said second position to a third position in which said book is positioned relative to said blade for having a predetermined amount trimmed from a third edge thereof thereby to produce a finished and trimmed book of said predetermined size.

44. (withdrawn) A method of trimming a perfect bound book (B) to a predetermined finished size, said book being of generally rectangular shape having a major dimension and a minor dimension, said book having a plurality of text pages (P) and a soft cover (C), said book being perfect bound along one major edge constituting a spine (S), said book having predetermined margins (M) to be trimmed from at least two edges of said book, said method being characterized by the steps of: a. gripping said book proximate said spine such that said book is substantially perpendicular to a shear blade as the latter is moved between an open position and a shearing position; b. with a first edge of said book disposed in position to be trimmed by said blade, and with said blade in its open position, moving said book relative to said blade such that a predetermined amount of said book along said one edge is positioned relative to said blade so as to be trimmed upon closing of said blade; c. effecting operation of said blade so as to trim said predetermined amount from said one edge of said book; d. rotating said book so as to dispose another edge of said book relative to said blade for being trimmed; e. moving said book relative to said blade such that a predetermined amount of said book along said other edge is positioned relative to said blade so that said second edge is positioned relative to said blade so as to be trimmed from said book upon closing of said blade; and f. effecting operation of said blade so as to trim said predetermined amount from said other minor edge of said book.

45. (withdrawn) The method of claim 44 wherein said method is further characterized by the steps of: g. rotating said book so as to dispose a third edge of said book relative to said blade for being trimmed; and h. effecting operation of said blade so as to trim said predetermined amount from said third edge of said book.

46. (withdrawn) The method of claim 45 further comprising the steps of moving said book laterally with respect to said blade as said book is rotated from its first to its second position.

47. (withdrawn) The method of claim 46 further comprising the step of moving said book laterally with respect to said blade as said book is rotated from its second to its third position.
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48. (withdrawn) The method of claim 47 wherein said third position is intermediate to said first and second positions.

49. (withdrawn) A method of trimming three edges of a perfect bound book (B) to a predetermined finished size, said perfect bound book having a cover (C) and a plurality of pages (P), said book being generally rectangular, said cover and pages being bound to one another along one edge of the book, said one edge constituting a spine (S), said having top and bottom edges generally perpendicular to said spine and an outer edge generally parallel to said spine, said method characterized by the steps of: a. placing said book to be trimmed in a holder with the bottom edge of said book projecting downwardly and with said book being gripped by said holder proximate said spine; b. moving said book vertically so that a predetermined amount of said book along said bottom edge is positioned for being trimmed from said book; c. actuating a shear blade movable in a generally horizontal shearing plane to trim said predetermined amount from said bottom edge of said book; d. moving said book from said first position to a second position in which the top edge of said book projects downwardly toward said shearing plane; e. moving said book vertically so that a predetermined amount of said book along said top edge is positioned for being trimmed from said book; f. actuating said shear blade to trim said predetermined amount from said top edge of said book; g. moving said book from said second position to a third position in which said side edge of said book so that a predetermined amount 10 of said book along said side edge is positioned for being trimmed from said book; h. actuating said shear blade to trim said predetermined amount from said side edge; and i. releasing said 15 trimmed book.
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50. (withdrawn) A method of trimming a perfect bound book to a predetermined finished size, said book being of generally rectangular shape having a major dimension and a minor dimension, said book having a plurality of text pages and a soft cover, said book being perfect bound along one major edge, said book having predetermined amounts to be trimmed from said minor edges and from said major edge, said book to be trimmed having a predetermined maximum thickness, said method comprising the steps of: a. gripping said book such that said book is substantially perpendicular to a shear blade as the latter is moved between an open position and a shearing position; b. with a first minor edge disposed in position to be trimmed by said blade and with said blade in its open position, moving said book relative to said 10 blade such that a predetermined amount of said one minor edge is positioned to be trimmed from said book; c. effecting operation of said trimming blade so as to trim said predetermined amount from said one minor edge of said book; d. rotating said book so as to dispose the other minor edge of said book relative to said blade for being trimmed; e. moving said book relative to said blade such that a predetermined amount of said other minor edge is positioned to be trimmed 15 from said book; f. effecting operation of said trimming blade so as to trim said predetermined amount from said other minor edge of said book; g. rotating said book so as to dispose said one major edge of said book relative to said blade for being trimmed; and h. effecting operation of said trimming blade so as to trim said predetermined amount from said major edge of said book.

51. (withdrawn) The method of claim 50 further comprising the steps of moving 20 said book laterally with respect to said blade as said book is rotated from its first to its second position.

52. (withdrawn) The method of claim 51 further comprising the step of moving said book laterally with respect to said blade as said book is rotated from its second to its third position.

25 53. (withdrawn) The method of claim 52 wherein said third position is intermediate to said first and second positions.

54. (withdrawn) A method of trimming three edges of a perfect bound book to a predetermined finished size, said perfect bound book having a cover and a plurality of pages,

said book being generally rectangular, said cover and pages being bound to one another along one edge of the book, said one edge constituting a spine, said having top and bottom edges generally perpendicular to said spine and an outer edge generally parallel to said spine, said method comprising the steps of: (a) placing said book to be trimmed in a holder with the bottom
5 edge of said book projecting downwardly and with said book being gripped by said holder proximate said spine; (b) moving said book vertically so that a predetermined amount of said book along said bottom edge is positioned for being trimmed from said book; (c) actuating a shear blade movable in a generally horizontal shearing plane to trim said predetermined amount from said bottom edge of said book; (d) moving said book from said first position to a second
10 position in which the top edge of said book projects downwardly toward said shearing plane; (e) moving said book vertically so that a predetermined amount of said book along said top edge is positioned for being trimmed from said book; (f) actuating said shear blade to trim said predetermined amount from said top edge of said book; (g) moving said book from said second position to a third position in which said side edge of said book so that a predetermined amount
15 of said book along said side edge is positioned for being trimmed from said book; (h) actuating said shear blade to trim said predetermined amount from said side edge; and (i) releasing said trimmed book.

55. (new) A book trimmer (1) for trimming the margins of a perfect bound book (B), said book having a plurality of text pages (P) and a cover (C), said book being generally
20 rectangular and having two minor edges and two major edges, said text pages being bound to said cover along one of said major edges constituting the spine (S) of said book, said book to be trimmed along its minor edges and along the other of its major edges opposite said spine to said predetermined finished dimensions, said trimmer comprising a platen (19) and a trimming blade (15) cooperable with said platen, said blade being movable in a shear plane (SP) with respect to
25 said platen between an open position in which the book may be inserted between said blade and said platen and a closed position in which the book is sheared between said blade and said platen, a holder (35) for gripping said book, a carriage (23) supporting said holder, a sub-frame (27) on which said carriage is mounted, said sub-frame along with said carriage and said holder being movable toward and away from said shearing plane, said holder and said book being rotatable
30 relative to said carriage between a first holder position, a second holder position, and a third

holder position where said holder positions are substantially 90 degrees from one another, said carriage being movable in transverse direction with respect to said sub-frame between a first carriage position in which said holder is in said first holder position, a second carriage position in which said holder is in said second holder position, and a third carriage position in which said
5 holder is in said third holder position whereby with said holder in said first holder position and with said carriage in said first carriage position said book is positioned relative to said shearing plane such that actuation of said blade shears a predetermined amount of the margin of said book along a first edge of said book, with said holder in said second position and with said carriage in said second carriage position said book is positioned relative to said shearing plane such that
10 actuation of said blade shears a predetermined amount of the margin of said book along a second edge, and with said holder in said third holder position and with said carriage in said second carriage position said book is positioned relative to said shearing plane such that actuation of said blade shears a predetermined amount of the margin of said book along a third edge thereby to produce a finished book trimmed to said predetermined finished dimensions.